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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|---------------------|------------------|
| 10/645,360 | 08/21/2003 | Robert Winston Nowlin | 10205.042 | 7470 |
| 7590 | 07/28/2006 | | EXAMINER | |
| Paul F. Wille 6407 East Clinton St. Scottsdale, AZ 85254 | | | | HAROON, ADEEL |
| | | ART UNIT | | PAPER NUMBER |
| | | 2618 | | |

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/645,360 | NOWLIN ET AL. | |
| | Examiner | Art Unit | |
| | Adeel Haroon | 2618 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 02 June 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-10 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Amendment filed on date: 6/02/06.

Claims 1-10 are still pending.

Response to Arguments

2. Applicant's arguments, filed 6/02/06, with respect to the rejection of claim 6 have been fully considered and are persuasive. Therefore, the finality of the previous action mailed on 3/31/06 is vacated and the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swaminathan et al. (U.S. 5,630,016) in view of Uchino et al (U.S. 2003/006362).

With respect to claim 1, Swaminathan et al. disclose a method of providing a comfort noise signal in a digital telephone having a receive channel and transmit channel in order “to provide background noise for discontinuous transmission and receiving systems during periods of voice inactivity that has the attributes of background noise during periods of voice activity” (Column 1, lines 14-19 and Column 2, lines 14-19). Swaminathan et al. do not disclose using sub-band filters and apply noise in accordance with magnitude of the signal in the sub-band. However, Uchino et al. disclose a method for providing a noise signal in a digital communication system. Uchino et al. discloses generating a white noise signal (Paragraph 114). Uchino et al. also disclose applying the white noise to a QMF filter bank, element number 56, to produce a comfort noise signal (Paragraph 472), wherein the magnitude of the white noise into each QMF filter is controlled in accordance with the magnitude of the signal in a corresponding sub-band in the one channel (Paragraph 457). Uchino et al. further disclose selectively coupling the comfort noise to the channel (Paragraphs 115-147). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant’s invention to apply Uchino et al.’s method of generating noise in the telephone of Swaminathan et al. in order to generate a noise signal that fluctuates along the power spectrum density distribution characteristic of the frequency fluctuations of the receive or transmit channel (Paragraph 478).

With respect to claim 2, Uchino et al. also disclose coupling a white noise signal through a first and second multipliers, element number 55, to the low pass and high pass input of a QMF bank respectively in figures 23 and 24 (Paragraphs 456-457, 472). Uchino et al. further disclose controlling the gain of the multipliers, element number 54, with the magnitude of the sub-band analysis where the first sub-band has a lower frequency than the second sub-band (Paragraphs 456-457).

With respect to claim 3, Uchino et al. do not expressly disclose combining the output signals from two or more of the sub-band filters. However, this combination results only in a wider bandwidth sub-band filter, which controls the multiplier's magnitude. Since Uchino et al. teach that the bandwidth of the sub-band filters as a range (Paragraph 442), it would be obvious to one of ordinary skill in the art at the time of the applicant's invention, to combine the outputs of the sub-band filters resulting in a wider bandwidth sub-band filter in order to have a wider bandwidth for the sub-band filter.

With respect to claims 4 and 5, Uchino et al. further disclose n sub-bands with no more than (n-1) QMF banks, element number 57, that are upwardly cascaded to increase the low frequency resolution of the comfort noise in figure 27 (Paragraph 472).

With respect to claim 6, Swaminathan et al. disclose a cellular telephone having an antenna, an RF stage, and signal processing circuit having an audio processor having a receive and transmit channel in figures 1 and 2. Swaminathan et al. further disclose a comfort noise generator, element number 76 (Column 4, lines 57-59). Swaminathan et al. do not disclose using sub-band filters and applying noise in

accordance with magnitude of the signal in the sub-band. However, Uchino et al. disclose a digital communication system method, which has noise generating means. Uchino et al. discloses a device having a receive channel and a transmit channel in figure 1. Uchino et al. disclose a plurality of analysis sub-band filters band (Paragraph 452). Uchino et al. disclose a comfort noise generator including a white noise generator, element number 25 (Paragraph 114). Uchino et al. also disclose coupling the white noise signal through a first and second multipliers, element number 55, to the low pass and high pass input of a QMF bank respectively in figures 23 and 24 (Paragraphs 456-457, 472). Uchino et al. further disclose controlling the gain of the multipliers, element number 54, with the magnitude of the sub-band analysis (Paragraphs 456-457). Uchino et al. further disclose means for selectively coupling the comfort noise to the channel (Paragraphs 115-147). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Uchino et al.'s method of generating noise in the telephone of Swaminathan et al. in order to generate a noise signal that fluctuates along the power spectrum density distribution characteristic of the frequency fluctuations of the receive or transmit channel (Paragraph 478).

With respect to claim 7, Uchino et al. further disclose n sub-bands with no more than (n-1) QMF banks, element number 57, that are upwardly cascaded in figure 27 (Paragraph 472).

With respect to claim 8, Uchino et al. do not expressly disclose combining the output signals from two or more of the sub-band filters. However, this combination results only in a wider bandwidth sub-band filter, which controls the multiplier's

magnitude. Since Uchino et al. teach that the bandwidth of the sub-band filters as a range (Paragraph 442), it would be obvious to one of ordinary skill in the art at the time of the applicant's invention, to combine the outputs of the sub-band filters resulting in a wider bandwidth sub-band filter in order to have a wider bandwidth for the sub-band filter.

With respect to claim 9, Uchino et al. further disclose n sub-bands with no more than $(n-1)$ QMF banks, element number 57, that are upwardly cascaded in figure 27 (Paragraph 472).

With respect to claim 10, Uchino et al. do not expressly disclose the number of the QMF banks is $(n/2 - 1)$. However, since the summation of the sub-bands filters only resulted in a wider sub-band filter, the combination is treated as one sub-band filter. Therefore, the expression $(n/2-1)$ is interpreted as one less QMF bank than the number of sub-band filter, which Uchino et al. teaches in figure 27 (Paragraph 472).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adeel Haroon whose telephone number is (571) 272-7405. The examiner can normally be reached on Monday thru Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH
7/21/06

Nguyen Vo
7-23-2006

NGUYEN T. VO
PRIMARY EXAMINER